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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,718	02/24/2004	Mark Banister	MEDIPAC 04.03	2762
27667	7590	11/23/2010	EXAMINER	
HAYES SOLOWAY P.C. 3450 E. SUNRISE DRIVE, SUITE 140 TUCSON, AZ 85718			FREAY, CHARLES GRANT	
		ART UNIT	PAPER NUMBER	
		3746		
		NOTIFICATION DATE	DELIVERY MODE	
		11/23/2010	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

admin@hayes-soloway.com  
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<b>Office Action Summary</b>	<b>Application No.</b> 10/786,718	<b>Applicant(s)</b> BANISTER, MARK
	<b>Examiner</b> Charles G. Freay	<b>Art Unit</b> 3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on September 27, 2010.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 2,3,15-21,24-61 and 63-78 is/are pending in the application.
  - 4a) Of the above claim(s) 8-12,16,18 and 27-57 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 2,3, 5-7, 17, 19-21, 24-26, 58-61 and 63-78 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-546)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date 9/2010
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

This office action is in response to the Amendment of September 27, 2010.

***Claim Objections***

Claims 58 (line 8) and 63 (line 9) are objected to because of the following informalities: in each of the claims "the starting position" should be "a starting position". Appropriate correction is required.

Claims 3 and 65 are objected to because of the following informalities: in lines 2 and 3 "the chosen rate" should be "a chosen rate". Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2, 3, 15, 17, 19-21, 58-61, 63-65 and 70-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over da Costa (USPN 6,004,115) in view of Chinn et al (USPN 6,685,442) and further in view of Bar-Cohen et al (USPN 5,961,298).

The da Costa reference discloses a pump for moving fluid having an actuator housing (13) having a chamber (14, 15) with ports (11, 12) for accommodating the flow of fluid therethrough. There are a plurality of individual actuators (20) located in the chamber which form plural chambers (20) that house the fluid in flow connection. There is an activator including a controller (see the first full paragraph of col. 5) for controlling the actuation at a predetermined time and rate. Da Costa does not set forth that the actuator material is an electroactuated polymer gel, encased in an essentially inert material which is semi-permeable to electrolytes, the encasing material being non-permeable or the actuators being electrically shielded from a contiguous actuator. Further, da Costa does not set forth that the fluid is a liquid or disclose plural of the chambers in flow connection.

Chinn et al discloses an actuator, which may be used as a pump (col. 2 line 2) and includes an electro-actuated polymer gel housed in a non-conductive housing. The gel 10 is encased in a housing 20 which is chemically inert, the gel is encased within the housing by a member 24 which is semi-permeable to the electrolyte. This structure is also encased with a sealed conformal coating. Note especially the disclosure from col. 5 line 55 to col. 6 line 36. The Bar-Cohen et al reference discloses a similar traveling

wave pump having a contiguous series of actuators 108 in contact with a fluid that is being pumped. Bar-Cohen et al note that the fluid can be a liquid or a gas (see line 2 of the Abstract at least) and also discloses plural chambers which either are or could be connected in flow connection in Figs. 5-9.

At the time of the invention it would have been obvious to one of ordinary skill in the art to substitute the plural actuators such as taught by Chinn et al for the actuators of da Costa since such an substitution would result in a miniature fluid device that is actuated with low electrical potentials and has significant performance characteristics (see col. 1 lines 30-35 and col. 2 lines 17-28 of Chinn). Additionally, it would have been obvious to one of ordinary skill in the art at the time of the invention that the pumping arrangement could be easily modified to pump liquids as taught by Bar-Cohen et al simply by making the actuators of similar size.

With regards to claims 2 and 64 it is noted that it would have been obvious to place plural of the of the structures together in a single housing, as taught by Bar-Cohen et al, and arrange them in either series for increased pressurization or in parallel for increased flow or for the mixing of two fluids.

Claims 5-7 and 65-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over da Costa in view of Chinn and Car-Cohen et al as applied to claim 4 above, and further in view of Culp (USPN 5,192,197).

As set forth above da Costa in view of Chinn discloses the invention substantially as claimed and furthermore at col. 5 the first two full paragraphs teaches of the use of a

controller. Da Costa does not set forth that the controller is a programmable microprocessor which responds to a sensor sensing a property such as temperature or pressure. Culp at col. 4 line 61 through col. 5 line 15 teaches of a programmable electric controller which is responsive to a sensor sensing properties such as pressure or temperature. At the time of the invention it would have been obvious to utilize a programmable controller and sensor arrangement such as taught by Culp as the da Costa controller to allow for increased control and applicability of the system to a variety of uses and environments.

***Response to Arguments***

Applicant's arguments with respect to independent claims 58 and 63, and the claims dependant therefrom, have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Xie et al, Swatek, Lopez et al, Brown et al and Derand et al disclose similar pumps and devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles G. Freay whose telephone number is 571-272-4827. The examiner can normally be reached on Monday through Friday 8:30 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles G Freay/  
Primary Examiner  
Art Unit 3746

CGF  
November 17, 2010